

Safety Data Sheet

Conforms to OSHA Hazard Communication Standard (HCS)

29CFR 1910.1200

Printing date 10/07/2014



Version number 2

Reviewed on 10/07/2014

1 Identification of the Substances/Preparation and of the Company/Undertaking

- **Product identifier**
- **Product name:** TYZOR® NBZ
- **Relevant identified uses of the substance or mixture and uses advised against**
Catalysts/Cross-linking agent./Adhesion promoters . Not for consumer application.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Dorf Ketal Specialty Catalysts LLC
11200 Westheimer Road
Suite 400
Houston, Texas 77042
Phone= +1 713 343 2377
Fax= +1 832 649 7615
Email: ehss@dorketal.com
- **Emergency telephone number:**
For Chemical Emergency ONLY (spill, leak, fire, exposure or accident) call Chemtrec at +1 (703) 527 3887 or Chemtrec India at 000-800-100-7141. DORF KETAL Emergency Control Room +91 22-65271001.

2 Hazard(s) identification

- **Classification of the substance or mixture**
Flam. Liq. 3 H226 Flammable liquid and vapour.
Eye Dam. 1 H318 Causes serious eye damage.
Skin Irrit. 2 H315 Causes skin irritation.
- **OSHA/HCS status**
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
- **Label elements**
- **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**


 GHS02 GHS05
- **Signal word** Danger
- **Hazard-determining components of labeling:**
butan-1-ol
- **Hazard statements**
Flammable liquid and vapour.
Causes skin irritation.
Causes serious eye damage.

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- **Precautionary statements**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Use explosion-proof electrical/ventilating/lighting/equipment.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 3

Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



HEALTH 2 Health = 2

FIRE 3 Fire = 3

REACTIVITY 0 Reactivity = 0

- **Other hazards** No information available.

- **Note:** > 60 % of the mixture consists of ingredient(s) with unknown acute toxicity.

3 Composition/information on ingredients

- **Chemical characterization:** Mixture

- **Description:** Mixture of the substances listed below with nonhazardous additions/ unknown toxicity.

- **Dangerous components:**

71-36-3	butan-1-ol	Flam. Liq. 3, H226 Eye Dam. 1, H318 Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336	7-13%
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4 First-aid measures

- **Description of first aid measures**

- **General information:**

Take affected persons out into the fresh air.

Do not leave affected persons unattended.

- **Inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in side position for transportation.

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· Skin Contact:

Immediately rinse with water.
 If skin irritation continues, consult a doctor.
 Remove contaminated clothing and shoes.
 Wash clothing before reuse.
 Clean shoes thoroughly before reuse.

· Eye Contact:

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.
 Check for and remove any contact lenses.
 Rinse opened eye for several minutes under running water. Then consult a doctor.

· Ingestion:

Rinse out mouth and then drink plenty of water.
 Do not induce vomiting.
 Consult a physician if necessary.

· Most important symptoms and effects, both acute and delayed

Skin irritation. Pain or irritation, redness, blistering may occur.
 Pain, watering, redness. Causes serious eye damage.

· Indication of any immediate medical attention and special treatment needed

Show this safety data sheet to the doctor in attendance. Treat symptomatically.

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5 Fire-fighting measures

· Extinguishing media In case of fire use the following suitable extinguishing agent.

· Suitable extinguishing agents:

Foam
 Fire-extinguishing powder
 Alcohol resistant foam
 Carbon dioxide
 Sand

· For safety reasons unsuitable extinguishing agents:

Water with full jet
 Water spray

· Special hazards arising from the substance or mixture

Flammable liquid and vapour.
 In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

In case of fire, the following can be released:

Carbon monoxide (CO)
 Carbon dioxide
 Metal oxides

· Advice for firefighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

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· Protective equipment:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Use respiratory protective device against the effects of fumes/dust/aerosol.

Wear protective clothing.

Keep away from ignition sources

Ensure adequate ventilation

· Environmental precautions:

Do not allow product to reach sewage system or any water course.

Inform respective authorities in case of seepage into water course or sewage system.

· Methods and material for containment and cleaning up:

Stop leak if without risk.

Move containers from spill area.

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

7 Handling and storage

· Precautions for safe handling

Do not ingest.

Avoid contact with eyes, skin and clothing.

Avoid breathing vapour or mist.

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

· Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

· Conditions for safe storage, including any incompatibilities**· Requirements to be met by storerooms and receptacles:**

Avoid storage near extreme heat, ignition sources or open flame.

· Information about storage in one common storage facility: Store away from oxidizing agents.**· Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.**· Specific end use(s)** No further relevant information available.

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8 Exposure controls/personal protection

· Control parameters

· Components with limit values that require monitoring at the workplace:

71-36-3 butan-1-ol

PEL	Long-term value: 300 mg/m ³ , 100 ppm
REL	Ceiling limit value: 150 mg/m ³ , 50 ppm Skin
TLV	Long-term value: 61 mg/m ³ , 20 ppm

· Exposure controls

· Appropriate engineering controls:

Use local exhaust ventilation or other engineering control to maintain airborne levels below exposure limit requirement or guidelines.

If there are no applicable exposure limit requirement or guidelines, general ventilation should be sufficient for most operations.

Local exhaust ventilation may be necessary for some operations.

· Personal protective equipment:

· General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Do not breathe vapor or mist.

· Breathing equipment:

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Where there is potential for airborne exposures, wear NIOSH approved respiratory protection.

· Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

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- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**



Tightly sealed goggles

- **Body protection:** Protective work clothing

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:

Liquid

Color:

Yellow /Tan

- **Odor:**

Alcohol-like

- **Odour threshold:**

No data available.

- **pH-value:**

No data available

- **Melting point/Freezing Point :**

No data available

- **Boiling point/Boiling range:**

117 °C (243 °F)

- **Flash point:**

30 - 40 °C (86 - 104 °F)

- **Flammability (solid, gaseous):**

Not applicable.

- **Decomposition temperature:**

No data available.

- **Explosion limits:**

Lower:

No data available.

Upper:

No data available

- **Oxidizing properties**

No data available.

- **Vapor pressure:**

No data available.

- **Relative density at 20 °C (68 °F)**

1.07 g/cm³ (8.929 lbs/gal)

- **Vapour density**

No data available

- **Evaporation rate**

No data available

- **Solubility(water):**

Soluble in Organic solvents
Decomposes in water.

- **Partition coefficient (n-octanol/water):** No data available

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- **Viscosity:**
- Dynamic at 20 °C (68 °F):** 60 - 150 mPas
- Kinematic:** No data available.

10 Stability and reactivity

- **Reactivity** Under normal conditions of storage and use, hazardous reactions will not occur.
- **Chemical stability** The product is stable under storage at normal ambient temperature.
- **Possibility of hazardous reactions**
Under normal conditions of storage and use, hazardous reactions are not known.
- **Conditions to avoid**
Avoid all possible sources of ignition (spark or flame).
Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- **Incompatible materials:**
Reactive or incompatible with the following materials:
Oxidizing material
- **Hazardous decomposition products:**
Under normal conditions of storage and use, hazardous decomposition products should not be produced

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11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**

71-36-3 butan-1-ol

Oral	LD50	790 mg/kg bw (Rat)
Dermal	LD50	> 2000 mg/kg bw (Rabbit)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Strong irritant with the danger of severe eye injury.
- **Respiratory/ Skin sensitization:** No sensitizing effects known.
- **Germ cell mutagenicity:** No known significant effects or critical hazards.
- **Carcinogenicity:** No known significant effects or critical hazards.
- **Reproductive toxicity:** No known significant effects or critical hazards.
- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients are listed.

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· NTP (National Toxicology Program)
None of the ingredients are listed.

· OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients are listed.

- **Single dose toxicity:** No known significant effects or critical hazard.
- **Repeated Dose toxicity** No known significant effects or critical hazard.
- **Aspiration hazard** Product is not classified for aspiration hazard.
- **Other relevant information:** No data available

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12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No known significant effects or critical hazards.
- **Persistence and degradability** No further relevant information available.
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Results of PBT and vPvB assessment** Not available
- **Other adverse effects** No further relevant information available.

13 Disposal Information

- **Waste treatment methods**

The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

- **Recommendation:**

Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

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14 Transport information

· UN-Number	
· DOT, ADR, IMDG, IATA	UN1993
· UN proper shipping name	
· DOT	Flammable liquids, n.o.s. (Butanols)
· ADR	1993 Flammable liquids, n.o.s. (Butanols), special provision 640E
· IMDG, IATA	FLAMMABLE LIQUID, N.O.S. (BUTANOLS)
· Transport hazard class(es)	
· DOT	
	
· Class	3 Flammable liquids
· Label	3
· ADR	
	
· Class	3 (F1) Flammable liquids
· Label	3
· IMDG, IATA	
	
· Class	3 Flammable liquids
· Label	3
· Packing group	
· DOT, ADR, IMDG, IATA	III
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Warning: Flammable liquids
· Danger code (Kemler):	30

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- | | |
|--|------------------|
| · EMS Number: | F-E, <u>S</u> -E |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · Transport/Additional information: | |
| · IMDG | |
| · Limited quantities (LQ) | 5L |

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**

- **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

- **Section 313 (Specific toxic chemical listings):**

71-36-3 butan-1-ol

- **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

- **Proposition 65**

- **Chemicals known to cause cancer:**

None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

- **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

- **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients are listed.

- **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients are listed.

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

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· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

File name: TYZOR NBZ SDS US en OCT-07-2014

Superseded SDS date: SEP-07-2011

Change History: Component, Classification and Transport information updated.

· Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

APF = Assigned protection factor

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

IOELV: Indicative Occupational Exposure Limit Values

Flam. Liq. 3: Flammable liquids, Hazard Category 3

Acute Tox. 4: Acute toxicity, Hazard Category 4

Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

· Disclaimer:

The data and recommendations presented in this data sheet concerning the use of our product and the materials contain there in are believed to be accurate and are based on information which is considered reliable as of the date hereof. However, the customer should determine the suitability of much material for his purpose before adopting them on a commercial scale. Since the use our product by others is beyond our control, no guarantee, express or implied, is made and no responsibility assumed for the use of this material or the results to be obtained there from. Information on this document is furnished for the purpose of compliance with Government Health and Safety Regulations and shall not be used for any other purposes. Moreover, the recommendations contained in this Safety Data Sheet are not to be constructed as a license to operate under, or a recommendation to infringe, any existing patents, nor should they be confused with state, municipal or insurance requirements, or with national safety codes.